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A NEW VARIETY OF *POTENTILLA GRACILIS* (ROSACEAE) AND RE-EVALUATION OF THE *POTENTILLA DRUMMONDII* COMPLEX

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ABSTRACT

Field studies and herbarium analyses of populations of *Potentilla* L. sect. *Graciles* (Rydb.) A. Nels. with atypical petiole vestiture result in the description of **Potentilla gracilis** Douglas ex Hook. var. **owyheensis** as a new variety, differing from var. *elmeri* and var. *flabelliformis* in having cottony-tomentose vestiture on the petioles instead of appressed to spreading straight hairs. The new variety grows in mid-montane meadows from the Owyhee Mountains in southwestern Idaho to the Ochoco Mountains in northeastern Oregon. It is conceivably of hybrid origin, with *Potentilla breweri* S. Watson providing the petiole vestiture that is otherwise unknown in *Potentilla* sect. *Graciles*. The study also resulted in the improved understanding of *Potentilla bruceae* Rydb. as a relatively coherent taxon centered in meadows around Lake Tahoe, California. As a result, *Potentilla bruceae*, *Potentilla drummondii* Lehm., and *Potentilla breweri* are recognized as distinct species, with *Potentilla subvillosa* Rydb. and *Potentilla anomalofolia* M. Peck as synonyms of *Potentilla bruceae*. *Potentilla versicolor* Rydb. is also recognized as a distinct species related to *P. breweri* but differing in having straight silky hairs rather than cottony tomentum.

Key Words: Owyhee, *Potentilla breweri*, *Potentilla bruceae*, *Potentilla drummondii*, *Potentilla gracilis*, *Potentilla versicolor*, Steens Mountain.

The *Potentilla gracilis* Douglas ex Hook. complex is the main component of *Potentilla* L. sect. *Graciles* (Rydb.) A. Nelson (Rosaceae), a section restricted to western North America. Species in the section have erect to ascending flowering stems that arise laterally to clusters of palmate (rarely subpalmate to subpinnate) leaves that are persistent at anthesis. The inflorescence is an open, many-flowered cyme in which the pedicels remain straight rather than becoming recurved in fruit. Flowers open widely at anthesis, with relatively large, yellow, obcordate petals, relatively long slender styles, and numerous smooth achenes. The *P. gracilis* complex was included in the original biosystematic investigations by Clausen, Keck, and Hiesey (1940a), who determined that the chromosomal situation was characteristic of apomictic species, comparable to that in several European *Potentilla* species complexes, with high seed set in spite of highly irregular meiosis. They also took the "almost bewildering shuffling" of morphological characters in most populations as evidence that some level of sexual reproduction was nevertheless occurring, often giving rise to well-defined ecotypes.

To reflect this complexity in a taxonomic framework, Keck (*in* Clausen et al. 1940a) chose to recognize six species in the complex: *Potentilla brunnescens* Rydb., *P. diversifolia* Lehm., *P. flabelliformis* Lehm., *P. gracilis* containing subsp. *gracilis* and subsp. *nuttallii* (Lehm.) D. D. Keck, *P. pectinisecta* Rydb., and *P. pulcherrima* Lehm. This was a significant paring-down from Rydberg's 1908 treatment of *Potentilla* for *North American Flora*, in which over 40 species in the complex (*sensu* Clausen et al. 1940a) were distributed among eight of Rydberg's "groups," intermixed with multiple other species. Peck nevertheless continued to use Rydberg's species in his *Manual of the Higher Plants of Oregon*, recognizing a dozen separate species in the first edition (Peck 1941) and several fewer in the second edition (Peck 1961). In contrast, Hitchcock et al. (1961) went one step beyond Keck and included all but *P. diversifolia* in a highly polymorphic *P. gracilis*, in which they recognized seven varieties: var. *brunnescens* (Rydb.) C. L. Hitchc., var. *flabelliformis* (Lehm.) Nutt. ex Torr. & A. Gray, var. *elmeri* (Rydb.) Jeps. (equivalent to *P. pectinisecta*), var. *pulcherrima* (Lehm.) Fernald, var. *permollis* (Rydb.) C. L. Hitchc., var. *gracilis*, and var. *glabrata* (Lehm.) C. L. Hitchc. This varietal approach has been used in other recent floras in the western United States (e.g., Ertter 1993; Holmgren 1997; Mansfield 2000), with var. *fastigiata* (Nutt.) S. Watson replacing var. *glabrata*. The *Potentilla gracilis* complex is currently being re-evaluated as part of the upcoming treatment of *Potentilla* in volume 9 of *Flora of North America North of Mexico*,

which will include keys to and descriptions of all taxa. Optimum circumscriptions have not yet been finalized, and will remain provisional due to the biological complexities noted by Clausen et al. (1940a).

The present paper focuses on a series of anomalous populations in *Potentilla* sect. *Graciles* that have cottony to shaggy pubescence on the petioles, in contrast to the straight appressed to spreading petiole hairs that otherwise characterize the section. This focus was triggered by multiple collections from the Mud Flat area of Owyhee County, Idaho, that have a distinct cottony-tomentose vestiture on the petioles. Field work in 2006 confirmed that plants with this vestiture type form relatively uniform populations in the Owyhee Uplands of southwestern Idaho. These plants are distinctive enough in other regards (e.g., adaxially silver-gray leaflets that are often secondarily lobed) to stand out when growing in mixed populations with other members of the *P. gracilis* complex, as is routinely the case. Further examination of
specimens in herbaria in Idaho and Oregon shows that the taxon also occurs in higher elevations of southeastern Oregon and is widespread in the Ochoco Mountains, primarily in scattered "prairies" surrounded by mixed conifer forest.

Before describing the "Mud Flat" entity as a new taxon, it was first necessary to determine its relation to several of Rydberg's many species names currently residing in synonymy, most of which were based only on type specimens. Of particular significance is *Potentilla subvillosa* Rydb. (page 316 in Rydberg 1908), based on *Hansen 297* collected in 1892 from Carson Spur in Alpine County, California. Keck (*in* Clausen et al. 1940a) considered this collection comparable to *P. pectinisecta* except for the presence of dense tomentum on the leaves and suggested that it might prove to be subspecifically distinct. Petiole vestiture on *Hansen 297* does in fact overlap that of the "Mud Flat" entity, opening the possibility that *P. subvillosa* represents the same taxon, and accordingly an existing available name, although occurring significantly farther south with no intervening populations known. Field work at and near Carson Spur in September 2006 confirmed, however, that extant plants comparable to the type of *P. subvillosa* from the type locality differ sufficiently from the "Mud Flat" entity to be considered separate taxa; i.e., shaggier petiole vestiture and less silvery-gray leaves that are frequently subpalmate. The Carson Spur material was furthermore determined to be representative of a relatively consistent entity that is locally abundant in meadows around Lake Tahoe and that extends into southern Oregon, with taxonomic implications discussed after the following new description.

Description and Discussion of Potentilla gracilis var. owyheensis

As a result of these field and herbarium studies, the "Mud Flat" entity is described here as *Potentilla gracilis* var. *owyheensis*. For the sake of consistency with current floras, we have decided to use varietal status, with the realization that further study might indicate that the distinctiveness of var. *owyheensis*, and for that matter other varieties in *P. gracilis*, is equivalent to that which characterizes apomictic species elsewhere in *Potentilla*. In the following description, leaflet measurements are for basal leaves, and the largest floral dimensions occur on the earliest flowers of the season.

Potentilla gracilis var. **owyheensis** Ertter & D. Mansfield, var. nov. (Fig. 1)—TYPE: USA, Idaho: Owyhee Co., northeast of Nickel Creek crossing on Owyhee Uplands National Back Country Byway (Mud Flat Road) between Owyhee Mountains and Juniper Mountain, 30–40 air miles SE of Jordan Valley (Oregon), dry meadow below juniper woodland on rhyolitic substrate, 42°32.90′N 116°46.01′W, ca 5400 ft., 5 Jul 2006, *B. Ertter 18688 with D. Mansfield and E. Yensen* (Holotype UC; isotypes CIC, ID, K, MO, NY, OSC, PR, RM, WTU)

Potentilla gracilis var. *elmeri* et var. *flabelliformis* primo adspectu maxime simile, sed petiolis gossypinis nec strigosus nec hirsutus.

Tufted perennial from sturdy branched caudex. **Stems** decumbent to ascending-erect, arising laterally to leaf tufts, (15–)30–60 cm long, ± cottony-tomentose to weakly pilose. **Leaves** palmate, the primary leaves basal; petiole (3–)5–15(–19) cm long (largest on Steens Mountain), ± cottony-tomentose, sometimes weakly pilose with tangled hairs 1–1.5 mm long; leaflets 5–7, ± obovate, the central leaflet (2–)3.5–7 cm long, toothed ca. (1/2–)3/4 to midvein with 4–8 teeth per side, the teeth ± tapering from base, sometimes secondarily toothed or lobed, the underside ± cottony-tomentose on surface and strigose on veins, the upper side less densely pubescent but still grayish with a mixture of cottony and pilose hairs; cauline leaves 1–4, reduced in size. **Inflorescence** congested at early anthesis, openly branched in fruit, comprising 1/4–2/3 of stem length, (5–)10–60-flowered; pedicels ± straight, 4–12(–20) mm long, whitely pilose with a mixture of crisped and fine straight hairs <1 mm long. **Flowers:** hypanthium shallow, externally pilose with loose silky-shaggy hairs ± 1(–2) mm long; sepals 4–7 mm long, acute—acuminate, sometimes purple-tipped; epicalyx bractlets ± narrowly lanceolate-elliptic, 2–5(–6) mm long, 1/2 to nearly as long as sepals; petals broadly obovate to obcordate, ± retuse, (3–)4–

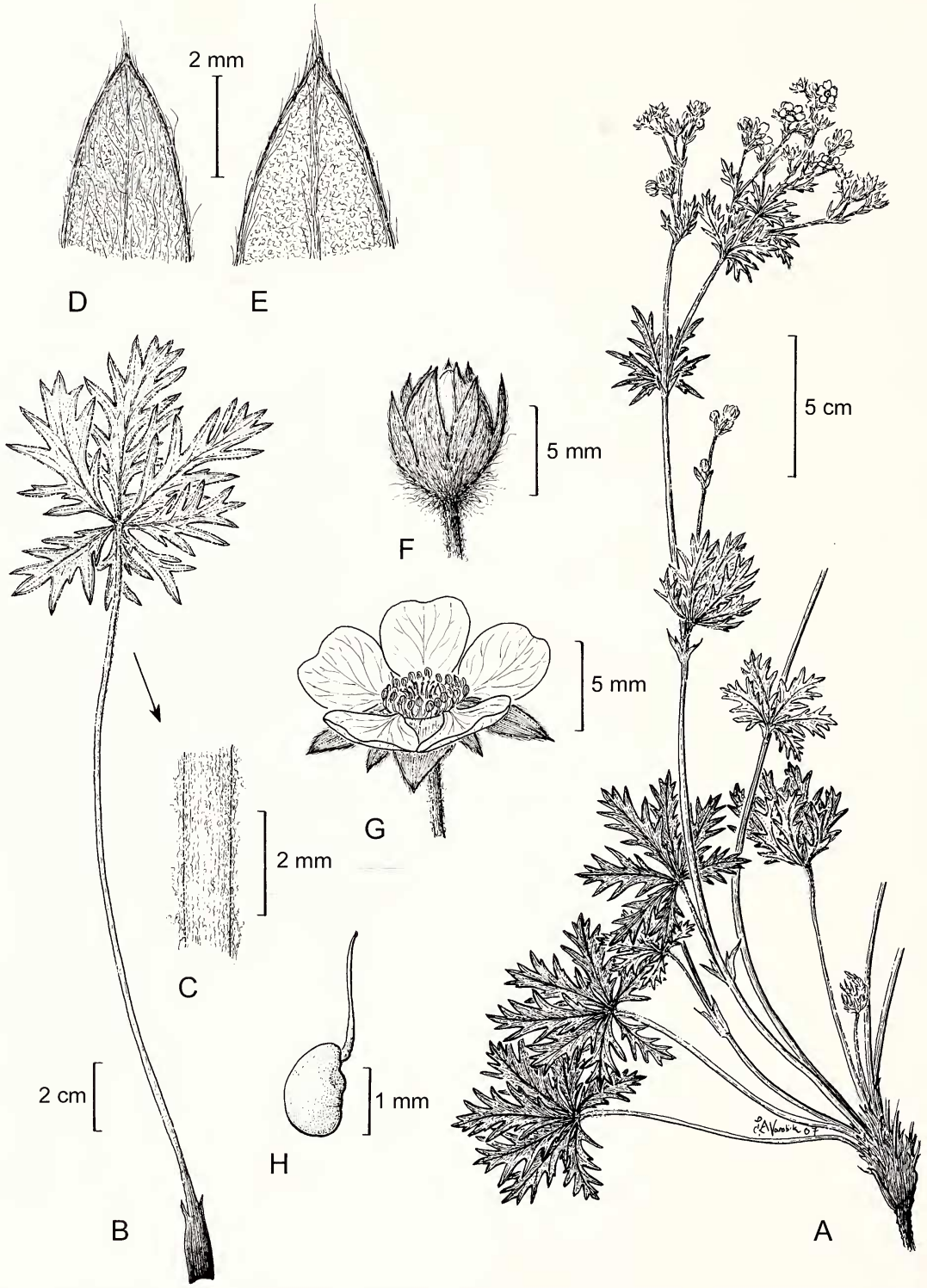

FIG. 1. *Potentilla gracilis* var. *owyheensis*. A. Habit. B. Basal leaf. C. Enlargement of cottony-tomentose vestiture on petiole. D. Vestiture on adaxial leaflet tip. E. Vestiture of abaxial leaflet tip. F. Flower bud, showing pilose vestiture. G. Opened flower. H. Achene and style. (A–G drawn from *Ertter 18680* and *18688*; H from *Ertter 18696*.)

6(–11) mm long, >sepals, bright yellow; filaments 1–3.5 mm long; anthers 0.8–1.1 mm long; styles 1.5–2.5 mm long, ± tapering from somewhat glandular-thickened base. **Achenes** ± 1.5 mm long, light brown, smooth.

Additional specimens. USA, **Idaho: Owyhee Co.**, Mud Flat, 44 mi SW of Grandview, 17 Jun 1943, *J. H. Christ 14079* (UC), Cottonwood Creek crossing on Owyhee Uplands National Back Country Byway (Mud Flat Road) between Owyhee Mts. and Juniper Mt., 5600 ft., 5 Jul 2006, *B. Ertter 18680 with D. Mansfield & E. Yensen* (CIC, UC), same location as *Mansfield 05-174*, 5 Jul 2006, *B. Ertter 18696 with D. Mansfield & E. Yensen* (CIC, UC), Pleasant Valley area ca 1½ mi. N of Mud Flat Rd., 11 Jun 1980, *D. Henderson 5567 with C. Wellner* (ID), 3 mi SW of Mud Flat on road to Juniper Mt., 7 Jun 1946, *B. Maguire & A. H. Holmgren 26306* (COLO, MO, UC, US, WTU), Mudflat Road 1.4 mi W of Juniper Mt. turnoff, 5670 ft., 9 Jun 2005, *D. Mansfield 05-174* (CIC, UC), Payne Cabin, Juniper Mt., ca 6150 ft., 14 Jul 1971, *P. L. Packard 71-257a* (CIC), along Mud Flat Road just past crossing of Battle Creek heading south, 5000 ft., 31 May 1993, *J. F. Smith 249* (SRP). **Oregon: Crook Co.**, Ochoco Forest, 22 Jun 1932, *M. E. Peck 17071* (WILLU), Summit Meadow, Ochoco Forest, 21 Jun 1932, *M. E. Peck 17078* (WILLU); **Grant Co.**, junction of State Rt. 16 and 63 in Summit Prairie, ca 5300 ft., 25 Jul 2006, *B. Ertter & J. F. Smith 18724* (SRP, UC), Logan Valley, 7 Aug 1946, *B. Maguire & A. H. Holmgren 26900* (NY, UC), moist ground 5 mi E of Austin [duplicate sheet: 5 mi E of Prairie City], 20 Jun 1938, *M. E. Peck 19899* (WILLU), Summit Prairie, 5775 ft., 11 Jul 1937, *E. H. Reid & R. Collins 554* (ORE); **Harney Co.**, Steens Mt., Fish Lake, 14 Jul 1943, *J. Davis s.n.* (WILLU), Steens Mt., S side of Fish Lake, 15 Aug 1996, *Ertter 15232* (CIC, UC), Steens Mt., south leg of Loop Road 1.2 mi from rim, ca. 8800 ft., 15 Aug 1996, *Ertter 15253* (CIC, UC), Steens Mt. 15.5 mi due ESE of Frenchglen, 7200 ft., 9 Jul 1953, *C. G. Hansen 341* (OSC), Steens Mt., meadow between Lily Lake and Fish Lake, 31 Jul 1946, *B. Maguire & A. H. Holmgren 26761* (UC, WTU), Steens Mt., flat 3/4 mi N of Fish Lake between McCoy Cr. and Big Fir Cr., 7500 ft., 21 Jun 1990, *D. Mansfield 90-286* (CIC), Steens Mt., Fish Lake/ Blitzen divide across road from Lost Lake turn, 8160 ft., 23 Jul 1991, *D. Mansfield 91-367* (CIC), Bear Valley, [N of] Burns, Jun 1937, *C. C. Parsell s.n.* (OSC), meadow along Silver Creek 6 mi W of Riley, 22 Jun 1925, *M. E. Peck 13907* (WILLU), Myrtle Park, 5 Jul 1941, *M. E. Peck 21009* (WILLU), Steens Mt., open mountain meadows above Fish Lake, 8000 ft., 16 Jul 1935, *J. W. Thompson 12133* (UC, WILLU, WTU); **Malheur Co.**, reservoir ca. 5 mi E of Jackson Creek Pass in upper Antelope Creek drainage, ca. 5800 ft., 2 Jul 1999, *D. Mansfield 99-136* (CIC), 8 air mi NE of McDermitt, 6400 ft., 12 Jun 2002, *D. Mansfield 02-417 with H. Kugler, H. Nielsen, & J. Loehrke* (CIC); **Wheeler Co.**, near summit of Ochoco Pass, 1555 m, 11 Jun 1941, *L.E. Detling 4841* (ORE).

Phenology, habitat, and distribution. Flowering May to July (August). Growing in vernally moist meadows that dry out during the summer, surrounded by *Artemisia* L., *Juniperus* L., *Populus tremuloides* Michx., *Pinus ponderosa* Douglas ex C. Lawson, and/or other conifers, from 1200 to 2700 m elevation in the Owyhee uplands and Ochoco, Aldrich, and Steens mountains of southeastern Oregon and adjacent Idaho.

Potentilla gracilis var. *owyheensis* characteristically occurs in mid-montane meadows that are vernally wet but dried by mid-summer. As is commonly the case for *P. gracilis*, multiple varieties regularly occur in the same meadows, notably var. *elmeri* or var. *flabelliformis* and var. *fastigiata* s.l. In such situations, there is generally at least some level of ecological stratification and phenological separation, with var. *owyheensis* dominating the drier periphery of the meadow and tending to have an earlier blooming period. In some populations (e.g., most of those in Owyhee County), there is very little evidence of intergradation between var. *owyheensis* and co-occurring varieties of *P. gracilis*, but some other populations (e.g., *Ertter & Smith 18724*) include plants with intermediate vestiture on the petioles and leaflets.

Most historical collections of *Potentilla gracilis* var. *owyheensis* have been distributed as *P. pectinisecta* (=*P. gracilis* var. *elmeri*) and would key to either this taxon or *P. gracilis* var. *flabelliformis* in regional floras (Hitchcock et al. 1961; Hitchcock and Cronquist 1973; Holmgren 1997). Peck's collections of var. *owyheensis* were variously identified as *P. flabelliformis*, *P. blaschkeana* Turcz., or *P. pennollis* Rydb. *Potentilla gracilis* var. *owyheensis* resembles var. *elmeri* and var. *flabelliformis* in having leaflets deeply divided into slender lobes, but differs from both varieties, and all other members of the *P. gracilis* complex, in having more or less cottony-tomentose pubescence on the petioles and both surfaces of the leaflets. In contrast, the other taxa only have relatively straight hairs that are spreading to appressed on the petioles, and any tomentum is absent or confined to the underside of the leaflets. As a result, var. *owyheensis* is conspicuously more silvery than co-occurring members of the *P. gracilis* complex. In addition, the leaflet teeth of var. *owyheensis* tend to be more irregular in size and shape, and are sometimes secondarily toothed or lobed.

Tentatively included in the current circumscription are specimens from near Fish Lake on

Steens Mountain that have served as the basis for the erroneous inclusion of *Potentilla quinquefolia* Rydb. in Oregon (Peck 1941, 1961; Hitchcock et al. 1961). These populations were treated by Mansfield (2000) as *P. gracilis* var. *elmeri* with introgression from *P. breweri* S. Watson, a high-montane species with abundant cottony tomentum. Unequivocal var. *owyheensis* occurs elsewhere on Steens Mountain (*Ertter 15253*), but many of the Fish Lake specimens are unusually short, with relatively short styles and intermediate vestiture. In that Steens Mountain is one of the areas where *P. breweri* is sympatric with multiple members of the *P. gracilis* complex, it is possible that these intermediate specimens do in fact result from hybridization between the two species. Indeed, introgression from *P. breweri* could underlie the origin of var. *owyheensis* itself, thereby accounting for a petiole vestiture type otherwise unknown in the *P. gracilis* complex. If so, var. *owyheensis* is now a well-established taxon, with a relatively high degree of morphological and ecological consistency throughout its range.

One additional specimen of possible relevance to *P. gracilis* var. *owyheensis* is a collection by David Douglas from "Valleys of the Blue Mountains, 1826," seen and photographed by one of us (Ertter) at K. The leaflet lobing and locality are compatible with var. *owyheensis*, such that the Douglas specimen could represent the oldest known collection of an overlooked variety, languishing among unidentified *Potentilla* for nearly 180 years. The specimen's original (mis)-identification as *Potentilla arachnoidea* (Lehm.) Douglas ex Rydb. carried a tantalizing hint of cobwebby petiole vestiture, although this name is a synonym of the unrelated *P. pensylvanica* L. However, close-up photographs made available to us, and an examination of the specimen by R. Brummitt, indicate that the petiole vestiture consists of relatively straight hairs comparable to those found in other members of the *P. gracilis* complex, not the cottony-tomentose hairs of var. *owyheensis*.

Potentilla subvillosa and the P. drummondii complex

As previously noted, the type of *Potentilla subvillosa* falls within a taxon that has some similarities to *P. gracilis* var. *owyheensis* but which has petioles with shaggier hairs and leaves that are frequently subpalmate, and which occurs well to the south of var. *owyheensis*. Field work has shown this entity to be a relatively consistent, locally abundant taxon in meadows around Lake Tahoe, characterized by irregularly subpalmate leaves and petiole vestiture ranging from villose to tomentose. Vouchers include *Ertter et al. 18770* (Carson Spur, Amador Co., CA), *Ertter et al. 18775* (Kirkwood Meadow, Amador Co., CA), and *Ertter et al. 18493* (Tahoe Meadows, Washoe Co., NV), all at UC with numerous duplicates to be distributed.

Comparable herbarium specimens occur further north in California and southern Oregon, allowing for variation in leaf dissection. This includes the type of *Potentilla bruceae* Rydb. from the Warner Mountains of Oregon, which has been treated as a subspecies or variety of *P. drummondii* Lehm. in recent floras (Ertter 1993; Holmgren 1997). The two taxa, plus *P. breweri*, comprise the *P. drummondii* complex as defined by Clausen et al. (1940b), which is closely related to the *P. gracilis* complex and shares an equally complex chromosomal situation indicating probable apomixis. In conjunction with their transplant experiments on the complex, Clausen et al. (1940b) treated *P. bruceae* as *P. drummondii* subsp. *bruceae* (Rydb.) D. D. Keck, but retained *P. breweri* as a separate albeit closely related species. They interpreted the regular occurrence of intermediates where the species occurred sympatrically, as was frequently the case, as evidence of hybridization and recombination. One of us (Ertter 1992) went one step further and treated *P. breweri* as *P. drummondii* subsp. *breweri* (S. Watson) Ertter, with the speculation that subsp. *bruceae* existed primarily as sporadic recurring hybrids between the two extremes.

As a result of the current investigation, this taxonomic stance is being reversed, with *Potentilla bruceae* being used at the species level to accommodate the relatively uniform populations noted previously, occurring in northeastern California and south-central Oregon. This circumscription includes the type of *P. subvillosa* and probably *P. anomalofolia* M. Peck, though the latter has more dissected leaves than typical *P. bruceae*. *Potentilla drummondii* in the narrow sense and *P. breweri* are also being treated as species, with *P. bruceae* and *P. drummondii* placed in *P.* sect. *Graciles*. *Potentilla breweri*, on the other hand, is provisionally placed in *P.* sect. *Multijugae* (Rydb.) A. Nelson on the basis of its pinnate leaves and more prostrate habit, although the cottony vestiture and straight pedicels are anomalous in the section. Such an arrangement can only be done with full acknowledgement that hybridization and introgression among species and across sections is routinely occurring, but this is evidently the norm for apomictic sections of *Potentilla* worldwide.

Another species closely related to *Potentilla breweri* is *P. versicolor* Rydb., which was considered a synonym of *P. breweri* by Clausen et al. (1940b), but which Hitchcock et al. (1961) treated as a synonym of *P. ovina* J. M. Macoun, and Holmgren (1997) treated as a synonym of *P. millefolia* Rydb. Plants comparable to the type of

P. versicolor are common on Steens Mountain, Oregon (Mansfield 2000), and also occur in the Wallowa Mountains of Oregon (e.g., *M. E. Peck 18484*, UC) and the Ruby Mountains in Elko County, Nevada (e.g., *N. H. Holmgren & P. K. Holmgren 10995*, UC). Such plants resemble *P. breweri* in habit and habitat but differ in having straight silky hairs rather than cottony tomentum. *Potentilla versicolor* will accordingly be recognized as a distinct species in *Flora of North America* and has already been treated as such by Mansfield (2000). The species is not currently known from California, but the type of *P. millefolia* var. *algida* Jeps. from Trinity County, California, is transitional from *P. breweri* to *P. versicolor*.

The complete synonymy for *Potentilla drummondii*, *P. bruceae*, *P. breweri*, and *P. versicolor*, as here circumscribed, is presented below. Not included is *Potentilla breweri* var. *viridis* Jeps., which is evidently a hybrid between *P. breweri* and *P. wheeleri* S. Watson, as previously discussed by Ertter (1992).

Potentilla drummondii Lehm.

Potentilla drummondii Lehm., Nov. Stirp. Pug. 2: 9. 1830. *P. dissecta* var. *drummondii* (Lehm.) Kurtz, Bot. Jarhb. Syst. 19: 374. 1894. TYPE: Canada: "in the Rocky Mountains, north of the Smoking River," *Drummond s.n.* (E! K! PR!)

Potentilla cascadensis Rydb., Mem. Dept. Bot. Columbia Coll. 2: 109. *P. drummondii* var. *cascadensis* (Rydb.) Th. Wolf, Biblioth. Bot. 16, Heft 71: 492. 1908. TYPE: USA, Washington: Skamania Co., Chiquash Mts., 14 Sep 1896, *Suksdorf 2165* (Holotype NY!; isotypes CAS! GH! MO! UC! US!)

Potentilla bruceae Rydb.

Potentilla bruceae Rydb., N. Amer. Fl. 22: 342. 1908. *P. drummondii* subsp. *bruceae* (Rydb.) D. D. Keck, Publ. Carnegie Inst. Wash. 520: 180. 1940. *P. drummondii* var. *bruceae* (Rydb.) N. H. Holmgren, Intermount. Fl. 3(A): 94. 1997. TYPE: USA, Oregon: Lake Co., Warner Mts., Jul 1898, *Mrs. C. C. Bruce 2301* (Holotype NY!; isotypes DS! fragment at UC!)

Potentilla subvillosa Rydb., N. Amer. Fl. 22: 316. 1908. TYPE: USA, California: Amador [Alpine on label] Co.: Carson Spur, 1892, *G. Hansen 297* (Holotype NY!; isotype MO!)

Potentilla anomalofolia M. Peck., Proc. Biol. Soc. Wash. 49: 110. 1936. TYPE: USA, Oregon: Klamath Co., 3 mi N of Klamath Agency, 10 Jul 1933, *M. E. Peck 16819* (Holotype WILLU in OSC!; isotypes UC! WILLU! WS!)

Potentilla breweri S. Watson

Potentilla breweri S. Watson, Proc. Amer. Acad. Arts 8: 555. 1873. *P. drummondii* subsp. *breweri* (S. Watson) Ertter, Brittonia 44: 430. 1992. *P. drummondii* var. *breweri* (S. Watson) N. H. Holmgren, Intermount. Fl. 3(A): 92. 1997. TYPE: USA, California: "summit of Mono Pass," 27 Jun 1863, *W. H. Brewer 1720* (Holotype US!; isotypes GH! JEPS! UC! YU!)

Potentilla breweri var. *expansa* S. Watson in W. H. Brewer & S. Watson, Bot. California 1: 179. 1876. TYPE: USA, California: Sierra Co., 1874, *J. G. Lemmon 64* (Holotype GH!; isotype NY!)

Potentilla plattensis Nutt. var. *leucophylla* Greene, Erythea 1: 5. 1893. TYPE: USA, California: Nevada Co., Independence Lake, 26 Jun 1892, *C. F. Soune s.n.* (MO! NY! UC!)

Potentilla millefolia Rydb. var. *algida* Jeps., Fl. Calif. 2: 186. 1936. TYPE: USA, California: Trinity Co., North Fork Swift Creek, Salmon Mts., July 1909, *H. M. Hall 8698* (Holotype UC!)—transitional to *P. versicolor*

Potentilla versicolor Rydb.

Potentilla versicolor Rydb., N. Amer. Fl. 22: 344. 1908. TYPE: USA, Oregon: Lake Co., Gearhart ("Grayheart") Butte, 9 Aug 1896, *F. V. Coville & J. B. Leiberg 307* (Holotype US!; fragment at NY!)

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